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DEPARTMENT OF THE ARMY  
OFFICE OF THE ADJUTANT GENERAL  
WASHINGTON, D.C. 20310

IN REPLY REFER TO

AGAM-P (M) (23 Jul 69) FOR OT UT 692288

29 July 1969

SUBJECT: Operational Report - Lessons Learned, Headquarters, 20th Engineer Battalion, Period Ending 30 April 1969

AD856118

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BY ORDER OF THE SECRETARY OF THE ARMY:

*Kenneth G. Wickham*

KENNETH G. WICKHAM  
Major General, USA  
The Adjutant General

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DEPARTMENT OF THE ARMY  
HEADQUARTERS, 20TH ENGINEER BATTALION (COMBAT)  
APO SAN FRANCISCO 96318

ECCB-OP

30 April 1969

SUBJECT: Operational Report - Lessons Learned (RCS CSFOR-65), of Quarterly  
Period 1 February 1969 thru 30 April 1969

Commanding Officer  
937th Engineer Group (Combat)  
APO 96318

Commanding General  
18th Engineer Brigade  
APO 96377

Commanding General  
US Army Vietnam  
ATTN: AVHGC (DST)  
APO 96375

Commander in Chief  
US Army Pacific  
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Assistant Chief of Staff for Force Development  
Department of the Army  
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Washington, D. C. 20310

### Section I. Operations: Significant Activities

1. At the beginning of the report period the Battalion Headquarters, Headquarters Company, Company A (-), Company C (-), Company D (-), and the first platoon of the 584th Engineer Company (Light Equipment) were located at Engineer Hill (AR 795525), the home of the 937th Engineer Group. Company B was at Camp Enari (AR 801339), the 4th Division Base Camp. The 584th Engineer Company (Light Equipment) (-) and first and third platoons of A Company were located at Wooly Bully II Quarry (AR 765813). The 538th Engineer Company (Land Clearing) and the first platoon of D Company were located at Ban Blech (AR 001536). While the third platoon of D Company was at Cheo Reo (BQ 249823), Company C had its third platoon at An Khe (BR A76445) and its second platoon at Blackhawk (AR 032528).

A. Company A was engaged in LOC upgrading, bridge repair, land clearing, minesweep, convoy security, firebase repair, airfield repair, and construction support of the 584th Engineer Company (Light Equipment).

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DIST.	AVAIL. AND OR SPECIAL	
2	Company B was engaged in construction of the Ivy Theatre at Camp Enari, operation of the prefab yard with forty (40) local hires, LOC maintenance on QL 19W, penepriming of a helipad at Duc Co, and construction of bridges 19-37 and 14-22.1 including concrete abutments.	

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DIST. AVAIL. AND OR SPECIAL  
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Company B was engaged in construction of the Ivy Theatre at Camp Enari, operation of the prefab yard with forty (40) local hires, LOC maintenance on QL 19W, penepriming of a helipad at Duc Co, and construction of bridges 19-37 and 14-22.1 including concrete abutments.

C. Company C was engaged in construction of generator revetments for the central power facility at Camp Enari, applying peneprine to helicopter arming point at Camp Hollaway, clearing fields of fire at Firebase Impossible, direct support of 2/1 Cavalry, LOC maintenance of QL-19E, and repair of An Khe Airfield.

D. Company D was engaged in construction of the main PX at Camp Enari, MACV upgrade at Cheo Reo and Phu Tuc, airfield repair at Cheo Reo, erosion control at Ban Blech airfield, and operational support of the 538th Engineer Company (Land Clearing).

E. The 538th Engineer Company (Land Clearing) was engaged in land clearing on QL-14S.

F. The 584th Engineer Company (Light Equipment) was engaged in upgrading QL-14N, repairing An Khe airfield, constructing Plei Mrong airfield and producing crushed rock. During the report period the Company produced 16,646 cubic yards of base course, 16,037 cubic yards of 3/4 inch minus and 31,139 cubic yards fines.

2. On 3 February, 2nd squad, 1st platoon, C Company completed their support mission at Firebase Impossible and was airlifted back to Engineer Hill.

3. On 4 February, 3rd platoon, C Company began prefabricating generator revetments for the central power facility at Camp Enari. The same day, the 538th Engineer Company (Land Clearing) moved north from RC-9 (BQ 002536) to RC-10 (AQ 984586).

4. On 5 February, 1st platoon, A Company began work on two (2) 22' x 27' concrete pads for Mess Hall at Wooly Bully Too. The pads were completed on 13 February 1969. Also, on 5 February, B Company was committed to the Fourth Division's one (1) day operation cleansweep VI. The Company was reorganized as infantry and moved out with Task Force I to set up a blocking position along QL-14. Negative enemy contact was reported.

5. On 6 February to 8 February, Company B was re-inspected by the Brigade CMMI team. All areas inspected were satisfactory.

- a. Ammunition Storage 100 percent
- b. Engineer Equipment 94 percent
- c. Tactical and Support Vehicles 81 percent  
(2)

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6. On 7 February, the 3rd platoon, A Company, began work repairing the Chinaman at Wolly Bully Too Quarry. Damaged posts, footers, decking and siding were replaced and then covered with  $\frac{1}{2}$ " welded sheet steel. The project was completed on 16 March 1969.
7. On 10 February, 1st platoon, B Company, replaced decking and treadway on Bridge 19-42, while the 3rd platoon began excavating for the abutment footers of Bridge 19-37. A squad from the 3rd platoon also went to Du Co where it applied several more coats of penoprime to the helipad there. The same day, the 3rd platoon, C Company completed work on helicopter revetments for D/2/1 Cavalry at An Khe, and 2nd platoon, 584th Engineer Company (Light Equipment) started upgrading the streets of Kontum in preparation for paving by the 102 Engineer Company (Construction Support).
8. On 11 February, 2nd platoon, A Company, completed work on two (2) 16' x 32' concrete Mess Hall pads for 3/6th Artillery at Artillery Hill, Pleiku. The same day, the 538th Engineer Company (Land Clearing) moved north to RC-11 (AQ 969634).
9. On 15 February, 3rd platoon, D Company, began work on a 20' x 20' latrine and shower, and 2500 gal/day septic tank at Phu Tuc. The project was completed on 3 March 1969.
10. From 17 to 20 February the 1st platoon, B Company was committed to Operation Blaze III in direct support of the 4th Provisional Battalion, consisting of companies made up of rear elements of the three (3) brigades of the 4th Infantry Division and commanded by the 4th Engineer Battalion. The 1st platoon provided a squad to each company during the search and clear operation. The engineers built two (2) TOCs, blew up several bunkers and caves, performed the reconnaissance prior to moving the battalion CP, and conducted weapons searches in villages with mine detectors.
11. On 18 February, 1st platoon, A Company, began removing and replacing the trusses and roof of the mess hall at Wooly Bully Too. The task was completed on 10 March 1969. The same day, a C Company D-7E dozer, with disk harrow, began clearing and cutting heavy weeds and grass along QL-19E west from An Khe.
12. On 19 February, 3rd platoon, B Company moved from Camp Enari to Oasis, home of the 3rd Brigade, 4th Infantry Division. The 3rd squad, 1st platoon C Company, began prefabricating helicopter revetments for the 52nd Artillery Group, Artillery Hill, Pleiku.
13. On 20 February, 2nd platoon B Company assumed responsibility for the 40' x 100' 704th Maintenance warehouse building and the 3rd platoon began driving piles for the foundation of Bridge 19-37.

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14. On 21 March, the 538th Engineer Company (Land Clearing) moved to RC-12, (AQ 924667). The steep slopes and large rocks in the pass north of RC-12 presented a formidable obstacle to the Ram Plows. In B-40 Alley, where the earth was loosely compacted and free of boulders the plows had been winched down the difficult slopes by safety dozers situated on the road above. This method of "yo-yoing" dozers could not be used in the pass north of RC-12 and demolitions became the main method of clearing. Local nationals were also hired to clear the thick bamboo growths with machettes.

15. On 24 February, 2nd platoon C Company, replaced two (2) of three (3) culverts blown by the enemy on QL-19E. Repairs on the 3rd culvert, a concrete box culvert, were not completed until 27 February 1969. The same day, the 1st squad, 1st platoon, B Company relocated from Camp Enari to Plei Djerang to give technical assistance to the Artillery units upgrading the firebase. A Company's 2nd platoon completed Phase II of the 283rd Dustoff helipad projects at Pleiku.

16. On 25 February, B-41, 10 ton tractor trailer hit a mine almost in sight of Plei Djerang and was a combat loss. The same day, the 1st platoon of C Company began work on a 20' x 50' extension to the Battalion Headquarters building.

17. On 26 February, the 1st platoon, D Company began work on Ban Biech Airfield. The work consisted of placing timbers and sandbags along side the strip to control erosion.

18. On 27 February, the 3rd platoon, A Company began reconstruction of Bridge 14-24, a 46' concrete deck bridge blown by the enemy.

19. On 28 February, the 1st squad, 1st platoon, A Company moved to Ben Hot (ZB 868287) to begin construction of two (2) 20' x 20' projectile bunkers and two (2) 20' x 20' powder bunkers, connected by a 15' wide, by 14' high by 60' long, covered passageway. The squad also had the mission of replacing the decking on 4-175mm gun pads, refurbishing berms around pads, upgrading living bunkers and improving drainage.

20. On 1 March, the 1st platoon, A Company began construction of eight (8) ammunition storage bunkers and replacement of the decking on the gun pads at Mary Lou Firebase, Kontum. The same day, the 1st platoon, 584th Engineer Company (Light Equipment) completed work on the Yellow Bird access road and Route 509 and relocated from Engineer Hill to An Khe to support C Company's airfield repair project there.

21. On 1 March, the 538th Engineer Company (Land Clearing) completed Task Force Bush Hog after clearing 6895 acres from both sides of QL-14S in support of the operation the 1st platoon, D Company had used almost 54,000 pounds of Composition Four and 18,000 pounds of military dynamite.

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During the project effort was also expended in the area of civil affairs. The company's medics visited six (6) Montagnard villages and treated 700 people. The company also cleared fields of fire and constructed new bunkers around Buon Ho. Similar work was also performed for Ban Blech Special Forces camp. In addition, the Task Force selected, marked and fell trees, 350 each 36 to 48 inches in diameter, for the CIDG to haul to their saw mill and cut into lumber.

The effect of the project on military and civilian personnel in the Ban Blech - Buon Ho area is incalculable. The frequency of attacks on convoys traveling the once hostile road decreased to almost nothing. A flood of commercial traffic appeared on the road with a corresponding boost in the economy of the area.

22. On 2 March, enemy forces probed the perimeter at Wooly Bully Too. Eight (8) B-40 rockets were fired. Bunker 8 and the FDC tower both received hits. There were no U.S. casualties but two men from the CIDG camp next door were killed.

23. On 5 March, the 1st platoon, D Company with support from the 538th Engineer Company (Land Clearing) began work on upgrading 2E from Ban Blech to Thuan Man. The scope of the work was to construct 18 kilometers of one lane road 8 to 10 feet wide with "V" ditches and to span 23' x 9' gap at BQ 052661 with a class 120 bridge using three (3) 30 inch "I" beams 40' long. One 18" culvert and three (3) 24" culverts were also placed by the 1st platoon. The project was completed on 14 March 1969.

24. On 6 March, the 1st platoon, A Company was relieved of the mission of land clearing along QL-14N between Pleiku and Kontum. The 584th Engineer Company (Light Equipment) assumed the mission. The same day, their 2nd platoon departed for Plei Mrong to begin reconstruction of the airfield there. From 6 through 22 March the 538th Engineer Company (Land Clearing) conducted a maintenance stand down at the B-23 motor pool in Ban Me Thuot. Quarterly Services were pulled on all dozers. The hydraulic system, transmissions, final drives and crankcases were drained, flushed and changed. Fuel, oil, and air filters were blown out and cleaned with solvent.

25. On 8 March, B Company poured the first concrete at Bridge 19-37. Chutes were used to move the concrete from the three (3) 16S mixers to the form. It took the company all night to pour the 75 cubic yards for the east abutment footer.

26. On 12 March, 3rd platoon, D Company sent a squad from Cheo Reo to Phu Nhon to pour a 20' x 56' concrete slab and construct an EM billet on it. The project was completed on 17 March.

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27. On 14 March, B Company poured the west abutment footer utilizing two (2) 16S concrete mixers and a crane with a concrete bucket saving both time and manpower.

28. On 16 March, A Company completed construction of an AVLB abutment bypass on QL-14N between Wooly Bully Too and the quarry site using 12" piles and 3" x 12" siding.

29. On 17 March, C Company completed emplacement and filling of over 460 feet of 4½ foot helicopter revetments for Artillery Hill. The same day the 1st platoon, D Company closed in at Engineer Hill after 92 days in the field. They stood down for 5 days.

30. On 17-21 March, the USARV AG Inspection Team arrived to inspect the 20th Engineer Battalion, less the 538th Engineer Company (Land Clearing) which had not been activated long enough. All units received a satisfactory rating.

31. On the night of 21 March, an enemy sapper att. ck. supported by 60mm and 82mm mortars, B-40 rockets and 122mm rockets, penetrated the perimeter at Wooly Bully Too by knocking out bunkers 6 and 7 on the eastern perimeter. Once inside, an estimated sapper platoon ran through the asphalt plant, crusher site and motor pool tossing grenades and satchel charges. They then exited to the northeast between bunkers 7 and 8. The asphalt plant operated by the 102nd Engineer Company (Construction Support) was completely destroyed, as was the 584th Maintenance shop, two 20 ton rough terrain cranes, a 375 cfm air compressor, a water distributor, a 2½ ton truck, two 3/4 ton trucks, three 5 ton dumps, two repair vans, a 20 ton Euclid dump truck and a secondary crusher engine. Two enemy bodies and numerous blood trails were found. Friendly casualties were 2 U.S. killed in action and 12 U.S. wounded in action.

32. On 22 March, the 538th Engineer Company (Land Clearing) with a D Company platoon in support departed Ban Me Thuot for Duc Lap to begin Task Force Stinger. A four phase Joint Vietnamese - American clearing operation which included a M4T6 rafting operation across the Ea Krong.

33. On 24 March, the 1st platoon, C Company began work on seven 50' x 50' concrete helicopter wash pads at Camp Enari. The same day, the 1st platoon of D Company began work on a 10' x 20' bunker at the 937th Engineer Group chopper pad. The 3rd platoon also began construction of helicopter revetments at the Golf Course in An Khe.

34. On 27 March, the 538th Engineer Company (Land Clearing) established RC-1 (ZU 203965).

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35. On 28 March, the 3rd platoon of C Company cleared 10 acres around Hong Kong Mountain, Camp Radcliffe so that a secondary perimeter fence could be constructed by the 173rd Airborne Brigade.

36. On 28 March, the 1st platoon, D Company began construction of a 20' x 40' above ground TOC for the 20th Engineer Battalion.

37. On 29 March, the 1st squad, 3rd platoon, A Company moved to Polei Kleng to begin repair of the airstrip and parking apron which had been damaged by enemy artillery fire. The same day, B Company poured the first lift of the east abutment of Bridge 19-37, a total of 50 cubic yards of concrete. Again, a crane and concrete bucket were utilized to save time and manpower. From this date until the end of the reporting period, the company was so heavily committed that the 1st platoon could no longer be assigned to maintenance of QL-19W, but had to be committed whenever gaps in the company effort occurred. Also, on 29 March, C Company completed the 10 foot high generator revetments for the central power facility at Camp Radcliffe. A total of 500 linear feet of revetments were installed.

38. On the night of 30 March, the enemy blew two culverts along QL-19E. The 2nd platoon had one culvert repaired by 1200 hours on 31 March. The 3rd platoon had difficulty with its culvert, and constructed a hasty by-pass in-order to reopen QL-19E. Repairs on the culvert were completed on 1 April 1969.

39. On 31 March, 2nd platoon, A Company turned over responsibility for mine-sweep and convoy security between Kontum and Pleiku to C Company. The change-over included the transfer of a  $\frac{1}{2}$  ton mounted mine detector, a 3/4 ton truck and three (3) 2 $\frac{1}{2}$  ton war wagons. Also on 31 March, the 1st platoon, 584th Engineer Company (Light Equipment) completed work at An Khe and moved back to Engineer Hill to begin work upgrading QL-14N from Pleiku to Kontum ahead of the 102 Engineer Company's (Construction Support) paving train.

40. On 1 April, the 2nd platoon, B Company received the mission of constructing a MACV Type L bridge over the Ia Moneyc where it crosses QL-14N. A hydrological analysis indicated that the maximum expected monsoon flow was 20 times the capacity of the existing culverts. During the monsoons last year this portion of the road washed away. The bridge will have 12' high concrete abutments and will have eight 40' 24WF34 steel stringers.

41. On 3 April 1969, all 20th Engineer Battalion units conducted eight (8) hours of anti-sapper training.

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42. On 5 April, Headquarters and 2nd platoon of A Company joined the 1st and 3rd platoons in Kontum. The move was in preparation for the assumption by A Company of all combat engineer missions in Kontum province. Company B began relocating from Camp Enari the same day. Their move was completed on 6 April.
43. On 7 April, B Company completed the by-pass for the La Monego bridge (bridge 14-22.1). D Company completed the Camp Enari PX the same day.
44. On 8 April, B Company poured the second 50 cubic yard lift of concrete at bridge 19-37.
45. On 9 April the 538th Engineer Company (Land Clearing) crossed the M. KONG and moved to RC-2 (ZU 144925).
46. On 10 April, the 2nd platoon, 584th Engineer Company (Light Equipment) completed the Plei Mrong airfield and returned to Wooly Bully Too where they began upgrading the Mary Lou ASF berms.
47. On 11 April, the 2nd platoon, A Company began construction of the B-40 standoff for the asphalt plant at Kontum. The project consisting of driving 38 12" piles on 16' centers and hanging a 20' high cyclone fence curtain on them. Two (2) 16' x 16' gates were constructed of 3" pipe and cyclone fence.
48. On 14 April, the 1st squad, 1st platoon, B Company returned to Engineer Hill after completing its project at Plei Djerang. D Company sent another squad of 2nd platoon moved south to join the 538th Engineer Company (Land Clearing). Another squad from 1st platoon moved to Ban Blech to install two 24" culverts in a low spot on 2E. The same day, the 584th Engineer Company (Light Equipment) sent its 2nd platoon to An Khe to support C Company in its upgrade of An Khe Airfield and the ASF berms.
49. On 15 April, the 1st platoon, B Company began work sandbagging the POL berms at Camp Enari in order to insure that the slopes would be stable during the monsoons. One of the two berms was completed on 17 April and it was decided at that time that the recent heavy showers had compacted the unprotected slopes and that no more work was necessary. Also on 15 April, the 1st platoon C Company began work on an observation tower at Artillery Hill to support their Xeon searchlight.
50. On 16 April, one plt of the 687th Engineer Company (Land Clearing) was detached from the 84th Engineer Battalion (Construction) and attached to C Company, with a mission to clear along QL-19E from An Khe to Quin Nhon. C Company was tasked to provide all required support.

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51. On 18 April, the 3rd platoon of C Company began work installing the 24' high B-40 standoffs around the POL tanks in the An Khe tank farm. The scope of work included raising the berms five (5) feet.

52. On 19 April, the 3rd platoon of C Company and 2nd platoon of the 584th Engineer Company (Light Equipment) began work upgrading the ASP at An Khe. The scope of work included, installation of drainage, raising the berms and improving the roads. The same day the 687th Engineer Company (Land Clearing) began clearing along QL-19E east from Bridge 19, and the 3rd platoon of D Company returned from Cheo Reo and began an 8 day stand down.

53. On 20 April, B Company, sent their dozer and a Headquarters grader to Plei Djerang to complete the remaining drainage work there. The grader returned 23 April and the dozer returned 25 April 1969.

54. On 21 April, the land clearing platoon from the 687th Engineer Company (Land Clearing) began clearing east of the An Khe pass in support of the ROK Army.

55. On 24 and 25 April, a total of 112 cubic yards of concrete were poured for the footers of Bridge 14-22.1.

56. On 26 April, the 538th Engineer Company (Land Clearing) moved to RC-3 (ZU 042874). Over 2900 acres of virgin jungle had been cleared, and 2960 pounds of explosives used by the 2nd platoon, D Company.

57. On 28 April, the 2nd platoon, D Company moved to Cheo Reo to make repairs on the airfield. The 3rd platoon moved to Kontum to prepare to begin work on a MACV "get well" project there. The actual work had not begun at the end of this reporting period.

58. On 29 April, B Company poured 50 cubic yards of concrete for the 1st lift of the west abutment of bridge 19-37.

59. On 30 April, B Company prepared the forms for pouring the 2nd lift of the west abutment the next day.

60. On 30 April the units of this battalion were performing their missions at the following locations:

A. Battalion Headquarters and Headquarters Company were located at Engineer Hill.

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B. Company A (-) was located at Wooly Bully Too. The 2nd platoon is actively engaged in construction of a B-40 standoff for the Asphalt plant while the 3rd platoon is upgrading Mary Lou Firebase. The 1st platoon is upgrading the Firebase at Ben Het.

C. Company B was located at Engineer Hill. The status of the company missions was as follows:

1. Bridge 14-22.1:

- a. The footers of both abutments had been poured.
- b. The south abutment was 50 percent formed and reinforcing steel had been placed.

2. Bridge 19-37:

- a. The center portion of the east abutment had been poured up to the level where the steel beams are placed, and the anchor bolts had been set in.
- b. The top of the east abutment and the wing walls were completely formed with reinforcing steel placed and ready for concrete pour.
- c. The first lift of concrete had been poured for the center portion of the west abutment.
- d. The forming and placement of reinforcing steel had been completed for pouring the second lift of concrete for the center portion of the west abutment and for the wing walls.

3. Ivy Theater: Construction was completed except for interior paneling and electrical wiring which was awaiting receipt of materials.

4. 704th Maintenance Battalion 40 foot by 100 foot warehouse. All roofing had been placed and 80 percent of the siding had been placed.

5. Prefab Yard: Work was continued on the following:

- a. Forms for Bridge 14-22.1.
- b. Sea Huts for Oasis and Blackhawk and Mary Lou Firebases.
- c. Latrines for Mary Lou and Ben Het Firebases.

6. LOC Maintenance of QL-19W: As soon as man power requirements allow, all elements of the company will be committed to this mission.

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D. Company C (-) was located at Engineer Hill. The 1st platoon was engaged in construction of concrete wash pads at Camp Enari and prefabricating revetments for use throughout the AO. The 2nd platoon (-) was at Blackhawk Fire Base in direct support of the 2/1 Cavalry. One squad of the 2nd platoon was conducting a daily minesweep along QL-14N. The 3rd platoon was at Camp Radcliffe, An Khe working on upgrading the Tank Farm at An Khe, rebuilding the ASP burns at Camp Radcliffe, and repairing the An Khe Airfield. One platoon from the 584th Engineer Company (Light Equipment) was supporting the 3rd platoon with equipment. The attached land clearing platoon, whose parent unit is the 637th Engineer Company (Land Clearing), was at An Khe, and clearing in support of the ROK Army.

E. Company D (-) was located at Engineer Hill. The 1st platoon was engaged in construction of the 20th Engineer Battalion TOC. The 2nd platoon was supporting the 538th Engineer Battalion (Land Clearing) south of Ban Me Thuot, and the 3rd platoon was at Kontum engaged in another MCV "get well" project.

F. The 584th Engineer Company (Light Equipment) (-) was located at Wooly Bully Too south of Kontum. The support platoon at the quarry was engaged in crushing rock. The 1st and 2nd platoons had been detached and attached to Headquarters Company. The 1st platoon was engaged in upgrading QL-14N ahead of the paving train and the 2nd platoon was in support of C Company at An Khe.

G. The 538th Engineer Company (Land Clearing) was clearing south of Ban Me Thuot along QL-14S. As of 30 April the project was 67% complete.

H. The 614th Detachment (PL) and Generator Installation Detachment were located at Camp Enari. The project is presently 76% complete with 265 buildings to be wired.

61. Enclosure #1 is an organizational chart of the Battalion during the report period.

62. During the reporting period the Battalion was engaged in three battalion days of training and 86 battalion days of operation.

63. Personnel:

A. During this report period, this unit was operating at approximately 90% strength. Replacements during the first two months were at a minimum while losses for this period were considerable. This shortage of personnel required cross-training of replacements into the more critical MOS's, utilizing civilian experience and aptitude scores as a guideline in most instances.

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The shortage of NCO replacements has not been alleviated to any large degree due to the large number of losses during the past quarter and continues to be an area of command emphasis.

B. In April the increased number of replacements alleviated the shortages of February and March. However, during the same period 40 EM, who arrived during the months of December and January with 11B training were levied out of this unit. A majority of these 40 EM had successfully completed OJT programs and were experienced in their cross-trained MOS. This large un-programmed loss made it necessary to make rapid adjustments in the replacement flow and necessitated the cross-training of a number of replacements.

C. Religious services were held three times weekly by the Battalion Chaplain. The main service was held in the Battalion Chapel at Engineer Hill with additional services held at Wooly Bully II on Sunday afternoons and with the 538th Engineer Company (Land Clearing). In addition the Battalion Chaplain, Chaplain Owens, spends half a day per week at Wooly Bully II and 538th (LC) talking with the men and handling their spiritual needs. The battalion is indeed fortunate to have such an enthusiastic and aggressive Chaplain to administer our religious needs.

D. During this period there were 29 awards for service or achievement received with 38 pending, 13 valor awards received with 7 pending, and 126 Vietnamese awards pending.

E. As of 30 April 1969 the battalion was at 91% fill with 45 officers, 4 warrant officers, and 989 enlisted personnel.

### 64. Intelligence and Civil Affairs:

A. During this report period, the 20th Engineer Battalion (Combat) S-2 Section continued to maintain contact with the various intelligence collecting agencies in the battalion TAO to include 937th Engineer Group, 4th Infantry Division, 5th Special Forces Group and II Corps Advisory Group. Virtually all intelligence is received from Intelligence Summaries of these units although Spot reports from battalion units continued to supply up-to-date intelligence data within the 20th Battalion's AO.

b. Reconnaissance activities were at a minimum during the reporting period. No new LCC's have been added to the battalion's area of operations thus requiring only updates of reconnaissance done in the past i.e. bridge reconnaissance on 14N, 19E, 19W and 14S.

C. Base camp defenses were improved during the reporting period. Wire obstacles were added to the existing perimeter wire i.e. tangle foot, double apron and a row of triple concertina between the bunkers. Fougasse drums

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have been added to the base camp defenses and electronic warning devices are being considered.

D. Civic Action programs during the reporting period were hampered by the lack of personnel. Building a well for a village along 14N and rebuilding a church late in the period, as personnel shortages were relieved, along with numerous Medicap visits by the Battalion Surgeon reflect increased command emphasis placed on the Civic Action Program.

### 65. Logistics:

#### A. Resupply of units in forward areas.

1. No major problems were encountered in resupply of units located at Engineer Hill and Wooly Bully II near Kontum.

2. Logistic support of the 538th Engineer Company (Land Clearing) improved considerable during this period as support was received from the FSA located at Ban Me Thuot.

#### B. Supplies and Equipment.

1. A shortage of generators continue to be a problem for units operating in forward areas. This shortage caused the few generators on hand to operate under overload conditions which in turn caused additional maintenance problems. Other items which were in short supply during this reporting period were plywood, plumbing supplies and lex materials.

2. The Battalion water point teams produced 450,960 gallons of water at Kontum, Mary Lou Firebase and 250,000 gallons at Ban Me Thuot.

### 66. Communications within the Battalion:

A. On 1 March, the communications section set up a radio station located at the Battalion forward element in Ban Me Thuot. This was for the purpose of maintaining continuous contact with the 538th Engr Co (LC) during their clearing mission from Ban Me Thuot to Duc Lap. Information was passed from the road camp to battalion forward by radio and relayed back to battalion at Pleiku by telephone.

B. When the 538th moved into Road Camp #3 on approximately 10 April, we were able to establish direct FM contact with the road site location from the battalion retransmission station on Dragon Mountain. This provided the necessary communications for direct command and control of a unit separated by such great distances from its parent headquarters as the 538th. It also greatly

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simplified the many administrative and logistical functions necessary to support a Land Clearing Company.

C. We have been able to maintain continuous communications with the land clearing road camp ever since by use of the Dragon Mountain retrans, a distance of approximately 130 miles.

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### Section II: Commander's Observations, Evaluation, and Recommendations:

#### 1. Operations:

##### a. ITEM: Gun Pad Decking

OBSERVATION: Gun Pad Decking has undergone excessive wear at both Ben Het and Kontum Firebases. This wear makes necessary constant replacement.

EVALUATION: Any method to decrease this wear will lead to longer gun pad life and decrease engineer effort. One method is to use creosote timber for decking as this timber has a preservative which additionally serves to aid track slippage which in turn decrease the wearing action by pivoting track mounted weapons. Another method is the counter sinking of nails. This method keeps the nails from pulling out and damaging tracks and loosening timbers. A final suggestion would be to periodically add OE 30 oil to the decking to decrease the friction mentioned earlier.

RECOMMENDATION: Implement the above details in construction and repair of timber gun decks.

##### b. ITEM: Chinaman Design

OBSERVATION: The Chinaman at Wooly Bully II failed for a few reasons that repair eliminated. Because of the critical value of the chinaman to loading operations for a quarry-crusher complex, every measure should be taken to avoid costly chinaman deadline.

EVALUATION: Large rocks were often lodged in the chinaman grizzly, decreasing loading capability. The grizzly was greatly enlarged to allow more and larger rocks to pass. The sides of the chinaman top were originally designed to accomodate a D-7E blade with 6" clearance on each side. The design was implemented to avoid loss of material around the sides of blade. However, the design did not consider operator error and the limited clearance led to destruction of the sides of the dozer entranceway. Reconstruction allowed for 2 foot clearance on each side of the blade. Finally, contact of the dozer blade with the metal plating on the bed of chinaman led to several plates being ripped from the deck. After installation of new plating, a two foot lift of fill was maintained on the bed to prevent contact.

RECOMMENDATION: All the above mentioned area be considered when constructing a chinaman.

##### c. ITEM: Tin Siding

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OBSERVATION: 1" x RW material was not available for siding on Sea-Huts being built by this unit. A suitable replacement was necessary.

EVALUATION: Several hundred sheets of tin were available and were used with good results. Four nails per sheet were used in order to minimize the number of holes in the sheets as reuse for roofing was anticipated. Additional nails were all placed in the valleys of the sheets grooves so that when used as a roof, the sheet could be turned over and the valley would be a ridge.

RECOMMENDATION: Tin sheeting works very well as a temporary replacement for timber siding.

d. ITEM: Concrete pouring equipment

OBSERVATION: Abutments for bridges require large amounts of concrete to be poured.

EVALUATION: Pouring concrete with 16S mixers is long hard work when pouring large volumes. Placing the concrete with chutes is time-consuming, especially when concrete bucket is used with a crane or if transit mix trucks are used. A one half cubic yard bucket was used with two 16S mixers, but the operation would have been vastly more efficient, if a 2 yard bucket had been used with transit mix trucks.

RECOMMENDATION: Combat Engineer Battalions when given missions requiring large concrete pours should be authorized a 2 yard bucket and transit mix trucks.

e. ITEM: Batch boxes.

OBSERVATION: For quality control, a measured amount of small and large aggregate must be placed in the 16S concrete mixers.

EVALUATION: Cubic foot boxes had been used requiring considerable time and effort. Batch boxes were designed and constructed so that personnel could shovel the total measured amount of small and large aggregate into the boxes from the back of a truck. A hinged gate was placed to allow the aggregate to be dropped in the skip of the 16S concrete mixer when the box is full.

RECOMMENDATION: Batch boxes should be built when large amounts of concrete are going to be poured.

f. ITEM: Re-bar bending tables

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OBSERVATION: A large amount of reinforcing steel must be cut and bent for bridge abutments.

EVALUATION: Since a large quantity of reinforcing steel had to be cut and bent the same way, a means was needed so that one piece of steel would be measured once and the rest cut and bent the same way without measuring again. Tables were built with moveable pieces of angle iron to be used as braces against which to brace the reinforcing steel and for measurements.

RECOMMENDATION: Re-bar bending tables should be built when large amounts of reinforcing steel have to be cut and bent.

g. ITEM: Use of plastic while pouring concrete.

OBSERVATION: Water is a critical factor in preparing a formed area. Because of difficulty in acquiring water, and in order to insure the concrete did not cure too quickly and cause cracks, construction plastic was placed against the ground just prior to pouring.

EVALUATION: The construction plastic maintained the moisture content of the concrete and effectively slowed the curing process.

RECOMMENDATION: If, while pouring large amounts of concrete, water is difficult to procure, the use of plastic can effectively prevent too rapid curing.

h. ITEM: Raising and placing large 40' trusses without a crane.

OBSERVATION: At the time the trusses were ready to be raised, a crane was not available. Utilizing 2 five ton dump trucks, the platoon placed the truss on the headache boards of the vehicles. With sufficient guides the trucks walked each truss to its spot on the roof. From there the platoon quickly raised and braced them.

EVALUATION: When a crane is not available, large trusses can be raised utilizing a unit's TOE equipment.

RECOMMENDATION: Every possible means of raising trusses with the equipment available should be known by any Project OIC.

i. ITEM: Replacing 6" x 6" center columns with 6" x 8" columns.

OBSERVATION: In the initial plans for the Camp Enari PX, 6" x 6" columns were used for the center column. No steel bearing plates were called for.

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EVALUATION: Once all trusses, tin, and bracing were placed on the roof, it was noted that the 6" x 6" columns had cracked and split under the weight. There also were no bearing plated against the floor to distribute the weight on the concrete.

RECOMMENDATION: The weight of the roof of the PX was under estimated in the initial design. The plans for the center columns should be overdesigned for any variance in the weight of the roof. Since no intermediate supports were used on the trusses the majority of the roof's weight is directly on these columns. To prevent failure of the concrete, steel bearing plates should always be used.

j. ITEM: Launching steel beams.

OBSERVATION: The three steel I beams used on the class 120 bridge on 2E arrived at the job site welded together for the bridge. All that was available for placing the stringers were D7E dozers. The structure weighted in excess of 8 tons and had to be placed over a 23 foot gap without dragging down the prepared abutment. A large ramp of soil was built 12 feet high on the near shore and centered on the abutment with a D7E dozer. One dozer was placed on the far shore. A cable from this dozer was winched across the gap and hooked the end of the I beam structure. Another dozer on the near shore attached his cable to the other end of the I beam structure. As the dozer on the far shore winched the I beam structure up the ramp and across the gap, the dozer on the near shore held tension on his end of the structure to prevent the nose from dipping suddenly into the gap.

EVALUATION: If possible, I beams should be welded together after being put into place.

RECOMMENDATION: When utilizing a D7E dozer, the versatility of the equipment should be known to each Project OIC.

k. ITEM: Hauling a 16S Mixer on a pole trailer.

OBSERVATION: When the squad was returning to Cheo Roc from Phu Tac, a low bed could not be obtained to haul the 16S Mixer. PSP was leaned on top of the wheels of a pole trailer and the Mixer was pushed up onto the trailer. When the Mixer was centered on the trailer, the PSP sections were pulled out. After the Mixer was securely tied, it made the return trip without incident.

EVALUATION: When a low bed is not available, a 16S Mixer can be carried on a pole trailer.

RECOMMENDATION: When working with a 16S Mixer, it is not necessary to tie up a low bed for transportation.

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### 1. ITEM: Amount of Bull Blades stored at rear detachment.

OBSERVATION: When clearing rocky areas with steep slopes the Rome Plow is not the equipment to be used for clearing the heavy growth.

EVALUATION: The use of more Bull Blades compared to Rome Plows was necessary during certain phases of this operation.

RECOMMENDATION: That a large amount of bull blades be stored where it would be convenient to change from the plow to bull blades when clearing heavy growth in rocky areas.

### 2. ITEM: Use of Air Compressor

OBSERVATION: During clearing operations in hot climate and dusty soils it was found that the dozers overheat constantly and must be taken from the cut site.

EVALUATION: Much time is lost ferrying dozers back to rear maintenance area to blow them out.

RECOMMENDATION: To have an air compressor on hand at the job site at all times. The reason being that in hot dusty areas it is very advantageous to blow out dozers approximately three times daily. During normal operations they should be blown when necessary.

### 3. ITEM: Cutting Large Trees.

OBSERVATION: It was found that when permitting the Rome Plows to cut trees over 24 inches the total acreage for the day would drop a great deal. Too much time was spent on larger trees.

EVALUATION: Combat engineer demolition teams can blow the large trees faster than they can be taken down with a Rome Plow.

RECOMMENDATION: Having at least one platoon of combat engineers to accompany every land clearing project to blast all trees in excess of 24 inches. Time and dozers can be saved a great deal if demolitions are utilized on the larger size trees.

### 4. ITEM: Cutting Trees On Steep Slopes

OBSERVATION: Dozers operating on very steep slopes covered with rocks and bamboo had accidents and problems while clearing the area.

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EVALUATION: The time required in "yo-yoing" dozers and the anxiety of the operations makes such operations inefficient.

RECOMMENDATION: To use Demolitions and Bangalore Torpedoes for blowing trees on steep slopes.

p. ITEM: Maintenance Stand Down Time

OBSERVATION: It was found that the 15 day maintenance down was not long enough to pull maintenance on all equipment.

EVALUATION: It takes 3 days to pull a quarterly on a dozer and only three can be done at once.

RECOMMENDATION: To allot more time for the full maintenance tasks necessary to get Engineer and Ordnance Equipment in good running condition. Recommend that 30 days be allotted for land clearing standdowns.

q. ITEM: Time of Day of Clearing Operation.

OBSERVATION: Operators were pulling maintenance in afternoon after working full day. They tended to forget some of the maintenance checks necessary.

EVALUATION: Over operations maintenance must still be supplemented by a motor stables in the mornings.

RECOMMENDATION: Motor stables should be pulled in morning because of the freshness of the operators and better supervision by platoon sergeants. Depending on the heat during the day maintenance could be changed to utilize the coolest part of the day for operating.

r. ITEM: Removal of M8A1 Matting

OBSERVATION: The prior procedure for removal of M8A1 matting was to just hack away at it until it was all torn up. The matting was then complete trash and had to be hauled away and dumped. It could not be used for anything. This method also took a lot of time, and was a lot of work.

EVALUATION: If the joints of the matting are cut and then pulled up and towed away by using a 5 ton or dozer it was found to be easier and approximately 80% faster. It was also found that the matting was damaged very little and could possibly be used again for other engineer missions.

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RECOMMENDATION: That when removing M8A1 matting the joints be cut and matting pulled out with 5 ton or dozer.

s. ITEM: Filling of Revetments

OBSERVATION: During revetment filling the revetments were found to be shifting laterally causing bad alignment.

EVALUATION: By placing a X bracing inside the revetments prior to filling the shifting of the revetments would be minimized if not completely prevented. On revetments over 6 or 8 feet in height, shifting is lessened by widening the base to about 5 or 6 feet width. It is important to make sure that the revetments are straight before filling, because once they are filled it is impossible to straighten them again.

RECOMMENDATION: All revetments be straightened prior to filling and the wire X bracing be placed and tightened.



WAYNE L. LUCAS  
MAJOR, CE  
Acting Commander

1 Incl  
1-Organizational Chart

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1-FILE  
15-Reference

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EGC-OP (30 April 1969) 1st Ind

SUBJECT: Operational Report of the 20th Engineer Battalion (Combat) for the Period Ending 30 April 1969 (RCS-CSFOR-65)

DA, HEADQUARTERS, 937TH ENGINEER GROUP (COMBAT), APO 96318, 22 May 1969

TO: Commanding General, 18th Engineer Brigade, ATTN: AVBC-CS, APO 96377

1. The Operational Report - Lessons Learned of the 20th Engineer Battalion (Combat) has been reviewed by this headquarters and is considered to be an excellent account of the 20th Engineer Battalion's activities during the reporting period ending 30 April 1969.

2. This headquarters concurs with all the observations and recommendations of the Battalion Commander with one exception which is found in Section II, paragraph 1p., Maintenance Stand-Down Time. The fifteen days allotted for maintenance stand-down is considered sufficient by this headquarters. The quarterly services required on each dozer can be pulled on several of the dozers during the normal clearing operation, decreasing the number of required quarterly services during the maintenance stand-down. Thirty days stand-down with sixty days operation is vastly inefficient with marginal gains.

W.G. KRATZ  
COLONEL, CE  
Commanding

AVNCC-10 (30 April 1969) 2nd Ind

SUBJ: Operational Report of the 20th Engineer Battalion (Combat) for the period ending 30 April 1969, IMA COFAR-65 (R1)

DA, Headquarters, 18th Engineer Brigade, AFN 96377 6 JUN 1969

TO: Commanding General, U.S. Army Vietnam, ATTN: AVNCC-EST, AFN 96375

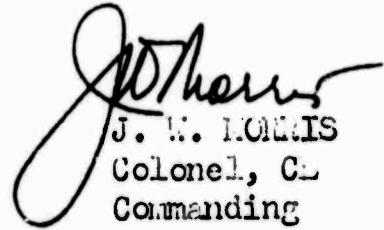
1. This headquarters has reviewed the Operational Report - Lessons Learned for the 20th Engineer Battalion (Combat) as indorsed by the 937th Engineer Group (Combat). The report is considered to be an excellent account of the Battalion's activities for the reporting period.

2. This headquarters concurs with the observations and recommendations of the Battalion and Group Commanders, with the following comments added:

a. Reference: Section II, paragraph 1d. A 2 yd bucket can be made locally by an experienced welder. However, large, reinforced chutes will be needed to effectively utilize the larger buckets. Twelve transit mix concrete trucks are due in July 1969 as part of the IMA equipment buy, and will be used when large amounts of concrete are placed.

b. Reference: Section II, paragraph 1g. A variety of materials, such as roofing paper, will suffice for preventing moisture loss from green concrete to the dry ground. If no such material is available, the ground may be soaked or more water applied to the first few batches of mix to prevent the concrete from curing too fast.

c. Reference: Section II, paragraph 1q. Another alternative would be to use a series of checkpoints with the operator performing specified maintenance procedures at each point. This has proven effective in other units.

  
J. W. MORRIS  
Colonel, C  
Commanding

CF: CC, 937th Engr Gp  
CC, 20th Engr Bn

AVHGC-DST (30 April 1969) 3d Ind

SUBJECT: Operational Report - Lessons Learned (RCS CSFOR-65), of  
Quarterly Period 1 February 1969 thru 30 April 1969

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96375 20 JUN 1969

TO: Commander in Chief, United States Army, Pacific, ATTN: CPOP-DT,  
APO 96558

1. This headquarters has reviewed the Operational Report-Lessons Learned  
for the quarterly period ending 30 April 1969 from Headquarters, 20th  
Engineer Battalion (Combat).

2. Reference item concerning Hauling a 16S Mixer on a Pole Trailer, section  
II, page 18, paragraph k; nonconcur. The 16S Mixer exceeds the weight cap-  
acity of the pole trailer. Further, the center of gravity of the 16S Mixer  
is high, and an unsafe condition exists when the mixer is transported by a  
pole trailer since it has a tendency to tip over on bumpy or uneven roads.  
Unit will be notified of above comment.

FOR THE COMMANDER:

  
W. C. ARNTZ  
CPT, AGC  
Assistant Adjutant General

Cy furn:  
20th Engr Bn  
18th Engr Bde

GPOP-DT (30 Apr 69) 4th Ind

SUBJECT: Operational Report of HQ, 20th Engineer Battalion (Cbt) for  
Period Ending 30 April 1969, RCS CSFOR-65 (R1) (U)

HQ, US Army, Pacific, APO San Francisco 96558 10 JUL 69

TO: Assistant Chief of Staff for Force Development, Department of the  
Army, Washington, D. C. 20310

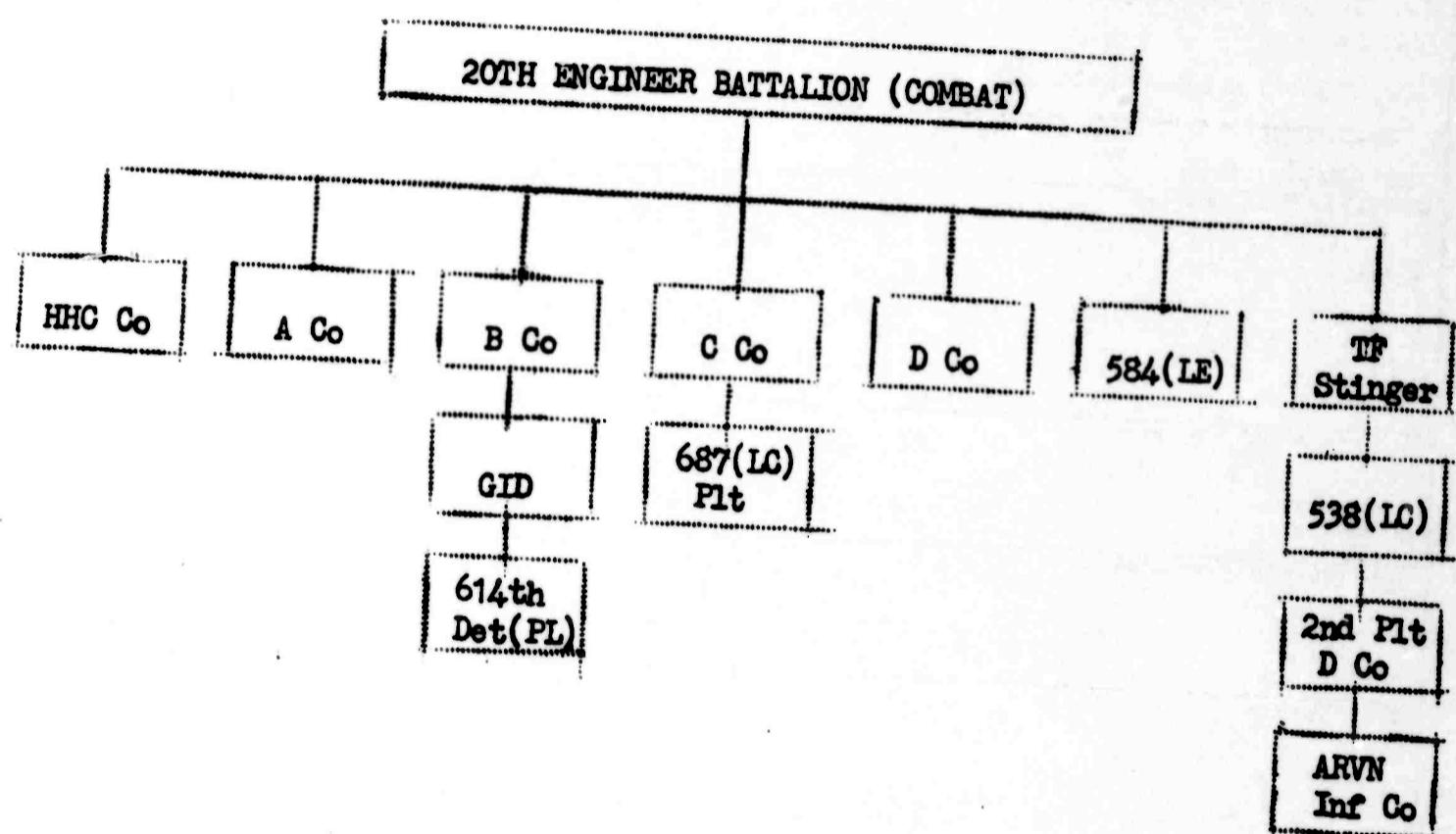
This headquarters has evaluated subject report and forwarding indorse-  
ments and concurs in the report as indorsed.

FOR THE COMMANDER IN CHIEF:



C. L. SHORTT  
CPT, AGC  
Asst AG

ORGANIZATIONAL CHART 20TH ENGINEER BATTALION (COMBAT)



Incl 1

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Security Classification

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(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

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